

CLAIMS

1. A video signal processing apparatus comprising:
signal-generating means for converting a frame rate of a first video signal, thereby generating a second video signal; and
data-inserting means for inserting a time code of the first video signal into the second video signal.
2. The video signal processing apparatus according to claim 1, wherein the time code is frame data written in VITC data contained in the first video signal, and the data-inserting means inserts the frame data into a user area of VITC data contained in the second video signal.
3. The video signal processing apparatus according to claim 1, further comprising second data-inserting means for inserting a sequence number into the second video signal, said sequence number indicating the order in which fields exist in the second video signal.
4. The video signal processing apparatus according to claim 3, wherein the second data-inserting means inserts the sequence number into the user area of VITC data contained in the second video signal.
5. A video signal processing apparatus comprising:
signal-generating means for converting a frame rate of a first video signal, thereby generating a second video signal; and
data-inserting means for inserting a sequence number into the second video

signal, said sequence number indicating the order in which fields exist in the second video signal.

6. A video signal processing apparatus comprising:

data-extracting means for extracting a sequence number from a first video signal containing the sequence number that indicates the order in which fields exist in the first video signal; and

data-generating means for processing the fields of the first video signal in accordance with the sequence number extracted by the data-extracting means, thereby generating a second video signal.

7. A video data processing apparatus designed to perform signal processing on source video data, said apparatus comprising:

means for converting 24-frame rate source video data to 30-frame rate video data by means of 2-3 pull-down process; and

means for describing a 30-frame rate time code corresponding to the 30-frame rate video data, as VITC data about the 30-frame rate video data, and describing a 24-frame rate time code corresponding to the 24-frame rate source video data, in an user bit area.

8. A video data processing apparatus designed to perform signal processing on source video data, said apparatus comprising:

means for converting 24-frame rate source video data to 30-frame rate video data by means of 2-3 pull-down process; and

means for describing a 30-frame rate time code corresponding to the 30-frame rate video data, as VITC data about the 30-frame rate video data, in a bit area that accords with SMPTE-12M standards, and describing, in an user bit area, a 24-frame rate time code corresponding to the 24-frame rate source video data and a sequence number indicating the order in which fields are processed in one sequence of the 2-3 pull-down process.

9. A video data processing apparatus designed to perform signal processing on source video data, said apparatus comprising:

means for converting 24-frame rate source video data to 30-frame rate video data by means of 2-3 pull-down process; and

data-inserting means for inserting, in a user bit area of the VITC data contained in the 30-frame rate video data, the data which indicates the order of fields that exist in the 30-frame rate video data during one sequence of the 2-3 pull-down process and which is used during inverse 2-3 pull-down process performed on the 30-frame rate video signal.

10. A video data editing apparatus for editing video data, said apparatus comprising:

means for receiving 30-frame rate video data generated by performing 2-3 pull-down process on 24-frame rate source video data;

data-extracting means for extracting a time code corresponding to the 24-frame rate source video data inserted in a user bit area of the VITC data contained in the

30-frame rate video data; and

means for generating an edition list of 24-frame rate, for use in editing the 24-frame rate source video data in accordance with the 24-frame rate time code.

11. A video data editing apparatus for editing video data, said apparatus comprising:

an on-line editing device for processing 24-frame rate video data; and

an off-line editing device for processing 30-frame rate video data,

wherein said off-line editing device comprises:

means for receiving 30-frame rate video data generated by performing 2-3 pull-down process on 24-frame rate source video data; and

means for generating an edition list of 24-frame rate, for use in editing the 24-frame rate source video data in accordance with the 24-frame rate time code which corresponds to the 24-frame rate source video data inserted in the user bit area of the VITC data contained in the 30-frame rate video data, and

said on-line editing device comprises:

means for editing the 24-frame rate source video data in accordance with the edition list of 24-frame rate.

12. A video data editing apparatus for editing 30-frame rate video data, said apparatus comprising:

means for receiving 30-frame rate video data generated by performing 2-3 pull-down process on 24-frame rate source video data; and

means for generating an edition list of 24-frame rate, for use in editing the 24-frame rate source video data in accordance with a 24-frame rate time code which corresponds to the 24-frame rate source video data inserted in the user bit area of the VITC data contained in the 30-frame rate video data.

13. A video data editing apparatus for editing video data, said apparatus comprising:

means for receiving 30-frame rate video data generated by performing 2-3 pull-down process on 24-frame rate source video data, said 30-frame rate video data containing a 30-frame rate time code described, as VITC data about the 30-frame rate video data, in a bit area that accords with SMPTE-12M standards, and a 24-frame rate time code corresponding to the 24-frame rate source video data and a sequence number indicating the order of fields in one sequence of the 2-3 pull-down process, both described in an user bit area of the VITC data of the 30-frame video data; and

means for generating an edition list of 24-frame rate, for use in editing the 24-frame rate source video data in accordance with a 24-frame rate time code and sequence number.

14. A video data editing apparatus for editing video data, said apparatus comprising:

means for receiving 30-frame rate video data generated by performing 2-3 pull-down process on 24-frame rate source video data, said 30-frame rate video data containing a 30-frame rate time code described, as VITC data about the 30-frame rate video data, in a bit area that accords with SMPTE-12M standards, and a 24-frame rate

time code corresponding to the 24-frame rate source video data and a sequence number indicating the order of fields in one sequence of the 2-3 pull-down process, both described in an user bit area of the VITC data of the 30-frame rate video data; means for generating 24-frame rate video data, by performing inverse 2-3 pull-down process on the 30-frame rate video data in accordance with the sequence number;

means for generating an edition list of 24-frame rate, by performing an of-line edition process using the 24-frame rate video data generated by means of the inverse 2-3 pull-down process and the 24-frame rate time code; and

means for producing a master video program by performing on-line edition on the 24-frame rate source video data in accordance with the 24-frame rate edition list.

15. A video signal processing method comprising the steps of:

converting a frame rate of a first video signal, thereby generating a second video signal; and

inserting a time code of the first video signal into the second video signal.

16. A video signal processing method comprising the steps of:

converting a frame rate of a first video signal, thereby generating a second video signal; and

inserting a sequence number into the second video signal, said sequence number indicating the order in which fields exist in the second video signal.

17. The video signal processing method according to claim 16, wherein the sequence number is inserted into the user area of VITC data contained in the second

video signal.

18. A video signal processing method comprising the steps of:
extracting a sequence number from a first video signal containing the sequence number that indicates the order in which fields exist in the first video signal; and
processing the fields of the first video signal in accordance with the sequence number extracted by the data-extracting means, thereby generating a second video signal.

19. A video data processing method designed to perform signal processing on source video data, comprising the steps of:

converting 24-frame rate source video data to 30-frame rate video data by means of 2-3 pull-down process; and

describing a 30-frame rate time code corresponding to the 30-frame rate video data, as VITC data about the 30-frame rate video data, and describing, in an user bit area, a 24-frame rate time code corresponding to the 24-frame rate source video data.

20. A video data processing method designed to perform signal processing on source video data, comprising the steps of:

converting 24-frame rate source video data to 30-frame rate video data by means of 2-3 pull-down process; and

describing a 30-frame rate time code described, as VITC data about the 30-frame rate video data, in a bit area that accords with SMPTE-12M standards, and describing, in an user bit area, a 24-frame rate time code corresponding to the

24-frame rate source video data and a sequence number indicating the order of fields in one sequence of the 2-3 pull-down process.

21. A video data processing method designed to perform signal processing on source video data, comprising the steps of:

converting 24-frame rate source video data to 30-frame rate video data by means of 2-3 pull-down process; and

inserting, in a user bit area of the VITC data contained in the 30-frame rate video data, the data which indicates the order of fields that exist in the 30-frame rate video data during one sequence of the 2-3 pull-down process and which is used during inverse 2-3 pull-down process performed on the 30-frame rate video data.

22. A video data editing method designed to edit video data, comprising the steps of:

receiving 30-frame rate video data generated by performing 2-3 pull-down process on 24-frame rate source video data;

extracting a time code corresponding to the 24-frame rate source video data inserted in a user bit area of the VITC data contained in the 30-frame rate video data; and

generating an edition list of 24-frame rate, for use in editing the 24-frame rate source video data in accordance with the 24-frame rate time code.

23. A video data editing method using an on-line editing device for processing 24-frame rate video data and an off-line editing device for processing

30-frame rate video data, wherein said off-line editing device receives 30-frame rate video data generated by performing 2-3 pull-down process on 24-frame rate source video data, and generates an edition list of 24-frame rate, for use in editing the 24-frame rate source video data in accordance with the 24-frame rate time code which corresponds to the 24-frame rate source video data inserted in the user bit area of the VITC data contained in the 30-frame rate video data; and said on-line editing device edits the 24-frame rate source video data in accordance with the edition list of 24-frame rate.

24. A video data editing method for processing 30-frame rate video data, comprising the steps of:

receiving 30-frame rate video data generated by performing 2-3 pull-down process on 24-frame rate source video data; and

generating an edition list of 24-frame rate, for use in editing the 24-frame rate source video data in accordance with a 24-frame rate time code which corresponds to the 24-frame rate source video data inserted in the user bit area of the VITC data contained in the 30-frame rate video data.

25. A video data editing method designed to edit video data, comprising the steps of:

receiving 30-frame rate video data generated by performing 2-3 pull-down process on 24-frame rate source video data, said 30-frame rate video data containing a 30-frame rate time code described, as VITC data about the 30-frame rate video data,

in a bit area that accords with SMPTE-12M standards, and a 24-frame rate time code corresponding to the 24-frame rate source video data and a sequence number indicating the order of fields in one sequence of the 2-3 pull-down process, both described in an user bit area of the VITC data of the 30-frame rate video data; and

generating an edition list of 24-frame rate, for use in editing the 24-frame rate source video data in accordance with a 24-frame rate time code and sequence number.

26. A video data editing method designed to edit video data, comprising the steps of:

receiving 30-frame rate video data generated by performing 2-3 pull-down process on 24-frame rate source video data, said 30-frame rate video data containing a 30-frame rate time code described, as VITC data about the 30-frame rate video data, in a bit area that accords with SMPTE-12M standards, and a 24-frame rate time code corresponding to the 24-frame rate source video data and a sequence number indicating the order of fields in one sequence of the 2-3 pull-down process, both described in an user bit area of the VITC data of the 30-frame rate video data;

generating 24-frame rate video data, by performing inverse 2-3 pull-down process on the 30-frame rate video data in accordance with the sequence number;

generating an edition list of 24-frame rate, by performing an of-line edition process using the 24-frame rate video data generated by means of the inverse 2-3 pull-down process and the 24-frame rate time code; and

producing a master video program by performing on-line edition on the

24-frame rate source video data in accordance with the 24-frame rate edition list.